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Filed : October 31, 2000

IN THE CLAIMS:

Please **ADD** new (dependent) Claims 38-59 and please **AMEND** the claims as follows:

1. (Presently Amended) A computerized device, comprising:
  - a processor; and
  - a memory device, wherein the memory device contains computer readable instructions for execution by the processor, the computer readable instructions being for execution by a client-side software module that comprises:
    - a user interface for interacting with a user and for identifying a target web page;
    - a multilevel search control interface configured to accept at least two parameters, to include a first parameter that defines a content based search string and a second parameter that identifies a linked set of documents that are linked via one or more levels of hyperlinks to the target web page;
    - a portable executable program code that is responsive to the at least two parameters, and is programmed to perform a multilevel search to search each of the documents specified in the linked set of documents for content that matches the content based search string;
    - a network based program module that causes at least a portion of the portable executable program code to be transmitted to a server that is adapted to accept the portable executable program code and to execute the portable executable program code after it is received from the computerized device;
    - wherein at least ~~some~~ a portion of the portable executable program code that has been transferred from the computerized device is permitted to execute at the server, and upon execution, the portion of the portable executable program code that is executed at the server orchestrates a multilevel search to cause the documents in the linked set of documents to be analyzed to determine whether they match the content based search string, and to couple back to the computerized device a selected zero or more of the linked set of documents found to comport with the first parameter;
    - wherein each document in the selected zero or more of the linked set of documents includes content as defined by the first parameter and is guaranteed to be a member of the linked set of documents as defined by the second parameter; and

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wherein the first parameter is not re-entered into any embedded search engines found in the linked set of documents or any other search engines to extend the search beyond the linked set of documents.

2. (Previously Presented) The client-side software module of Claim 1, wherein said user interface comprises a window display providing an interactive menu to a user.

3. (Presently Amended) The client-side software module of Claim 2, wherein said user window display is a part of a windows based graphical user interface.

4. (Previously Presented) The client-side software module of Claim 1, wherein each of the selected zero or more of the linked set of documents is automatically downloaded by the client-side software module to create a local representation of the linked set of documents.

5. (Previously Presented) The client-side software module of Claim 1, wherein each document found in the search is downloaded and a local sitemap representative of the linking structure of the linked set of documents is created by the client-side software module.

6. (Presently Amended) A computerized device, comprising:  
a processor; and  
a memory device, wherein the memory device contains computer readable instructions for execution by the processor, the computer readable instructions being for execution by a client-side software module that comprises:

a user interface for interacting with a user and for identifying a target web page;  
a multilevel search control interface configured to accept at least three parameters to include i) a first parameter that defines a content based search string, ii) a second parameter that identifies a set of linked set of documents that are linked via one or more levels of hyperlinks to the target web page, and iii) a third parameter that specifies one or more file types as defined by one or more file name extensions;

a portable executable program code that is responsive to the at least three parameters, and is programmed to perform a multilevel search to search each of the documents having the specified file type and being in the linked set of documents for

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content that matches the content based search string, wherein each document in the linked set of documents can be reached from the target document via a sequence of hyperlinks which each point to a respective document within the linked set of documents;

a network based program module that causes at least a portion of the portable executable program code to be transmitted to a server that is adapted to accept the portable executable program code and to execute the portable executable program code after it is received from the computerized device;

wherein at least some of the portable executable program code that has been transferred from the computerized device is permitted to execute at the server, and upon execution, the portion of the portable executable program code that is executed orchestrates a multilevel search to cause the documents in the linked set of documents to be analyzed to determine whether they match the content based search string and also meet the file type specification, and to couple back to the computerized device a selected zero or more of the linked set of documents found to comport with the first and third parameters;

wherein each document in the selected zero or more of the linked set of documents is of the specified file type, includes content as defined by the content based search string, and is guaranteed to be a member of the linked set of documents; and

wherein the first parameter is not re-entered into any embedded search engines found in the linked set of documents or any other search engines to extend the search beyond the linked set of documents.

7. (Presently Amended) The ~~client-side software module~~ computerized device of Claim 6, wherein said client-side software module is operative to search for all ~~files~~ documents with an extension of .ppt within the linked set of documents.

8. (Presently Amended) The ~~client-side software module~~ computerized device of Claim 6, wherein said client-side software module is operative to download all of the selected zero or more of the linked set of documents.

9. (Previously Presented) For use in a client computerized device, a method comprising the steps of:

obtaining application data from an application layer interface;

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passing said application data to a user via a user interface;

coupling a multilevel-search interface to the user via the user interface, the multilevel search interface being configured to accept at least two parameters, a first parameter that defines a content based search string and a second parameter that identifies a set of linked set of documents whose documents are each constrained to be linked via one or more levels of hyperlinks from a target web page and to have a hyperlink address that is within the boundaries of a specified domain of hyperlink addresses;

transmitting a multilevel search specification to a remote server, wherein said multilevel search specification causes the following multilevel-search acts to be executed in one or more remote servers:

(i) accessing a first markup language document and scanning said first markup language document to determine a hyperlink contained therein;

(ii) determining whether the hyperlink points to a document whose URL address falls within the boundaries of the specified domain of hyperlink addresses; and

if the hyperlink was found to fall within the boundaries of the specified domain of hyperlink addresses:

(iii) retrieving at least a portion of the document pointed to by said hyperlink found in said accessing;

(iv) comparing the contents of the document pointed to by said hyperlink to at least a portion of said content based search string; and

(v) coupling back to the client computerized device the document pointed to by said hyperlink if the comparison has a positive result;

wherein each document coupled back to the client computerized device as a result of the multilevel-search acts is guaranteed to be a member of the linked set of documents defined by the second parameter and to include content as defined by the first parameter; and

wherein the first parameter is not re-entered into any embedded search engines found in the linked set of documents or any other search engines to extend the search beyond the linked set of documents.

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10. (cancelled)

11. (cancelled)

12. (Previously Presented) The method of Claim 9, wherein said content based search string includes a Boolean keyword expression.

13. (Previously Presented) The method of Claim 9, wherein said computerized device is a wireless mobile device and said at least two parameters further comprise information derived from an electronic positioning system.

14. (Presently Amended) The method of Claim 9, wherein said multilevel search specification further comprises a portable executable program code that orchestrates the following act:

evaluating the results of the comparison and when said step act of comparing reveals a match to the content-based search string, coupling information related thereto to the user, and when said step of comparing does not yield a match, checking to see if the search is complete, and if it is not, accessing a next hyperlink and repeating the acts of accessing, determining, retrieving, comparing, and coupling. ~~steps of activating, retrieving, and comparing, and evaluating.~~

15. (Presently Amended) The method of Claim 14, wherein said repeated act of accessing evaluating further comprises:

when said information has been coupled to said user, awaiting a find-next signal, and when said find-next signal is received, checking to see if the search is complete, and if it is not, accessing a next hyperlink and repeating the acts of accessing, determining, retrieving, comparing, and coupling. ~~steps of activating, retrieving, and comparing, and evaluating.~~

16. (Previously Presented) The method of Claim 9, wherein said at least two parameters include a Boolean keyword expression, an indication of the number of levels to search, and an indication to continue the search on a designated-next-linked page.

17. (Previously Presented) The method of Claim 9, wherein said hyperlink points to a metadata description of a web resource and said step of accessing involves accessing a file containing metadata relating to said resource.

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18. (Presently Amended) The method of Claim 9, wherein the document pointed to by said hyperlink found in said accessing said second markup document comprises a metadata description, said metadata description being described using a resource description framework (RDF) based language.

19. (Presently Amended) In For use with a client-side computing device, a method of seeking information that is located in an information network, the method comprising the steps of:

accessing a web page via said information network using a client-server transaction;

presenting said web page to a user via a user interface;

receiving via the user interface one or more multilevel search parameters to define a multilevel browsing operation over a set of documents;

receiving via the user interface a content based search parameter;

specifying in said client-side device a multilevel search specification comprising a first parameter that defines a content based search specification and a second parameter that identifies a linked set of documents that are linked via one or more levels of hyperlinks from the web page, and transmitting the multilevel search specification to a remote server that is adapted to execute a multilevel search in response thereto;

wherein the remote server, in response to the multilevel search specification causes a set of specified links who are within N hyperlink hops of the web page to be searched for the content based search parameter, and causes to be coupled back to the client-side computing device a selected zero or more of the linked set of the documents found to comport with the first parameter;

wherein each document in the selected zero or more of the linked set of documents is guaranteed to be a member of the linked set of documents as defined by the second parameter and to further include content as defined by the first parameter; and

wherein the first parameter is not re-entered into any embedded search engines found in the linked set of documents or any other search engines to extend the search beyond the linked set of documents.

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20. (Previously Presented) The method of Claim 19, wherein the multilevel search specification is limited by not following any hyperlink that points outside of a specified domain as defined in a URL specification.

21. (Presently amended) For use in servicing a multilevel search request from a remote client-side computerized device, a server-side computerized device, comprising:

a processor; and

a memory device, wherein the memory device contains computer readable instructions for execution by the processor, the computer readable instructions being for execution by a server-side software module that comprises:

an application-layer interface for interacting with a remote user associated with the remote client-side computerized device;

a multilevel search control interface configured to accept from the remote client-side computerized device via the application-layer interface at least two parameters, including a first parameter that defines a content based search string and a second parameter that defines a linked set of documents that are each linked to a target web page via one or more levels of hyperlinks;

a search module that is operative to implement a multilevel search based upon the at least two parameters which specify a multilevel search to search each of the documents specified in the linked set of documents for content that matches according to the content based search string, wherein documents in the linked set of documents are characterized in that they can be reached from the target web page through a sequence of N hyperlink activations, where N is a member of the group consisting of fixed integer and a parameter that defines a domain in a URL specification used to bound the search to only follow hyperlinks leading from the target web pages and falling within a specified domain;

wherein the server executes the multilevel search to cause the documents in the linked set of documents to be analyzed to determine whether they match according to the content based search string, and to couple back to the client-side computerized device a selected zero or more of the linked set of documents found to comport with the first parameter;

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wherein each document in the selected zero or more of the linked set of documents includes content as defined by the first parameter and is guaranteed to be a member of the linked set of documents as defined by the second parameter; and

wherein the first parameter is not re-entered into any embedded search engines found in the linked set of documents or any other search engines to extend the search beyond the linked set of documents.

22. (previously presented) For use in servicing a multilevel search request from a remote client-side computerized device, a server-side method, comprising:

interacting via an application-layer interface with a remote user associated with the client-side computerized device;

accepting from the client-side computerized device via the application-layer interface at least two parameters, including a first parameter that defines a content based search string and a second parameter that defines a linked set of documents wherein each document in the linked set of documents is a member of a group consisting of: documents linked to a target web page via one or more levels of hyperlinks, and documents whose respective hyperlink web addresses fall within a specified domain relative to a hyperlink base address;

implementing a multilevel search based upon the at least two parameters to cause each respective document in the linked set of documents to be analyzed to determine whether it respectively matches the content based search string, and if so, identifying it as a selected respective document; and

for each selected respective document, selectively coupling back to the client-side computerized device information related to the selected respective document;

wherein each selected respective document includes content as defined by the first parameter and is guaranteed to be a member of the linked set of documents as defined by the second parameter; and

wherein the first parameter is not re-entered into any embedded search engines found in the linked set of documents or any other search engines to extend the search beyond the linked set of documents.



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23. (previously presented) The method of Claim 22, wherein the information related to the selected respective document comprises the selected respective document.

24. (previously presented) The method of Claim 22, further comprising:  
accepting from the client-side computerized device via the application-layer interface a portable executable program code;

wherein the implementing the multilevel search is performed at least in part by execution of at least some of the portable executable program code.

25. (previously presented) The method of Claim 22, wherein each document in the linked set of documents is a member of the group consisting of documents linked to the target web page via one or more levels of hyperlinks.

26. (previously presented) The method of Claim 22, wherein each document in the linked set of documents is a member of the group consisting of documents whose respective hyperlink web addresses fall within the specified domain relative to the hyperlink base address.

27. (previously presented) The method of Claim 26, wherein the second parameter is evaluated at least in part by accessing server-side metadata that supplies sitemap information to identify the documents in the linked set of documents.

28. (Presently Amended) The method of Claim 22, ~~wherein the client-side computerized device comprises an electronic positioning system, the method further comprising:~~

accepting from the client-side computerized device via the application-layer interface a third parameter related to a current geographic location of the client-side computerized device, ~~and~~

wherein the implementing the multilevel search is based upon the first, second and third parameters to cause each respective document in the linked set of documents to be analyzed to determine whether it respectively matches the content based search string, and additionally whether it meets a geographic location criterion, and only if it matches both the content based search string criterion and the geographic location criterion, then identifying it as a selected respective document.

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29. (Presently Amended) The method of Claim 22, wherein the client-side computerized device and the server side method ~~make use of~~ utilize remote object technology, and the application layer interface comprises a remote object interface.

30. (Presently Amended) For use in a client-side computerized device, a method, comprising:

interacting via an application-layer interface with a remote server that is adapted to perform multilevel search operations;

accepting from a user via a user interface at least two parameters, including a first parameter that defines a content based search string and a second parameter that defines a linked set of documents wherein each document in the linked set of documents is a member of a group consisting of: documents linked to a target web page via one or more levels of hyperlinks, and documents whose respective hyperlink web addresses fall within a specified domain relative to a hyperlink base address;

passing via the application-layer interface the first and second parameters to the remote server so that the remote server can implement a multilevel search based upon the at least two parameters to cause each respective document in the linked set of documents to be analyzed to determine whether it respectively matches the content based search string, and if so, ~~the remote server identifies~~ to identify it as a selected respective document, and for each selected respective document, the remote server selectively couples back to the client-side computerized device information related to the selected respective document;

accepting via the application-layer interface the information related to each selected respective document coupled back from the remote server as a result of the multilevel search performed by the remote server;

passing to the user via the user interface a representation of the information related to each selected respective document coupled back from the remote server;

wherein each selected respective document includes content as defined by the first parameter and is guaranteed to be a member of the linked set of documents as defined by the second parameter; and

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wherein the first parameter is not re-entered into any embedded search engines found in the linked set of documents or any other search engines to extend the search beyond the linked set of documents.

31. (previously presented) The method of Claim 30, wherein the information related to the selected respective document comprises the selected respective document.

32. (previously presented) The method of Claim 30, further comprising:  
sending to the remote server via the application-layer interface a portable executable program code;

wherein the multilevel search is performed at least in part at the remote server by execution of at least some of the portable executable program code.

33. (previously presented) The method of Claim 30, wherein each document in the linked set of documents is a member of the group consisting of documents linked to the target web page via one or more levels of hyperlinks.

34. (previously presented) The method of Claim 30, wherein each document in the linked set of documents is a member of the group consisting of documents whose respective hyperlink web addresses fall within the specified domain relative to the hyperlink base address.

35. (previously presented) The method of Claim 34, wherein the second parameter is evaluated at least in part by accessing server-side metadata that supplies sitemap information to identify the documents in the linked set of documents.

36. (Presently Amended) The method of Claim 30, ~~wherein the client-side computerized device comprises an electronic positioning system, the method~~ further comprising:

passing via the application-layer interface a third parameter related to a current geographic location of the client-side computerized device;

wherein the multilevel search performed at the remote server uses the first, second and third parameters to cause each respective document in the linked set of documents to be analyzed to determine whether it respectively matches the content based search string, and additionally whether it meets a geographic location criterion, and only if it matches

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both the content based search string criterion and the geographic location criterion, then the remote server identifies it as a selected respective document.

37. (Presently Amended) The method of Claim 30, wherein the client-side computerized device and the server side method ~~make use of~~ utilize remote object technology, and the application layer interface comprises a remote object interface.

38. (New) The method of Claim 22, further comprising:

accepting from the client-side computerized device via the application-layer interface a third parameter that designates a file type;

wherein each document in the linked set of documents is a member of a group consisting of documents whose respective hyperlink web addresses fall within a specified domain relative to a hyperlink base address; and

wherein the multilevel search is performed over all documents whose web addresses fall within the specified domain and the multilevel search further uses the third parameter to only identify a document as a selected respective document if the document is of the designated file type.

39. (New) The method of Claim 38, wherein the designated file type is a .pdf file type.

40. (New) The method of Claim 38, wherein the designated file type is a .ppt file type.

41. (New) The method of Claim 38, wherein the second parameter includes a user-entered text string that defines the domain.

42. (New) The method of Claim 22, further comprising:

accepting from the client-side computerized device via the application-layer interface a third parameter that identifies a subsection type which is a member of the group consisting of a paragraph type, a heading type, and a designated tagged object type;

wherein each document in the linked set of documents is a member of a group consisting of documents whose respective hyperlink web addresses fall within a specified domain relative to a hyperlink base address; and

wherein the multilevel search is performed over all documents whose web addresses fall within the specified domain and the multilevel search further uses the third

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parameter to only identify a document as a selected respective document if the first parameter is matched by text found in the identified subsection type within the document.

43. (New) The method of Claim 42, wherein the second parameter includes a user-entered text string that defines the domain.

44. (New) The method of Claim 22, further comprising:

accepting from the client-side computerized device via the application-layer interface a third parameter that designates a file type;

accepting from the client-side computerized device via the application-layer interface a fourth parameter that identifies a subsection type which is a member of the group consisting of a paragraph type, a heading type, and a designated tagged object type;

wherein each document in the linked set of documents is a member of a group consisting of documents whose respective hyperlink web addresses fall within a specified domain relative to a hyperlink base address; and

wherein the multilevel search is performed over all documents whose web addresses fall within the specified domain, the multilevel search further uses the third parameter to only identify a document as the selected respective document if the document is of the designated file type, and the multilevel search further uses the fourth parameter to only identify a document as a selected respective document if the first parameter is matched by text found in the identified subsection type within the document.

45. (New) The method of Claim 44, wherein the second parameter includes a user-entered text string that defines the domain, and server-side sitemap metadata is used to identify which documents are present in the domain.

46. (New) The method of Claim 44, wherein the first, second, third, and fourth parameters are entered by a user of the client-side computerized device via a user interface.

47. (New) The method of Claim 22, further comprising:

accepting from the client-side computerized device via the application-layer interface a third parameter that identifies an image file whose image file type is a member of the group consisting of a .gif image file type and a .mpg moving image file type;

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wherein each document in the linked set of documents is a member of a group consisting of documents whose respective hyperlink web addresses fall within a specified domain relative to a hyperlink base address; and

wherein the multilevel search is performed over all documents whose web addresses fall within the specified domain and the multilevel search further uses the third parameter to only identify a document as a selected respective document if the first parameter is matched by text associated with the image file.

48. (New) The method of Claim 47, wherein the file type is a .gif file type.

49. (New) The method of Claim 48, wherein the second parameter includes a user-entered text string that defines the domain, and server-side sitemap metadata is used to identify which documents are present in the domain.

50. (New) The method of Claim 47, wherein the file type is a .mpg file type.

51. (New) The method of Claim 30, further comprising:

accepting from the user via the user interface a third parameter that designates a file type;

passing via the application-layer interface the third parameter to the remote server,

wherein each document in the linked set of documents is a member of a group consisting of documents whose respective hyperlink web addresses fall within a specified domain relative to a hyperlink base address, and

wherein the multilevel search is performed over all documents whose web addresses fall within the specified domain and the multilevel search further uses the third parameter to only identify a document as a selected respective document if the document is of the designated file type.

52. (New) The method of Claim 51, wherein the designated file type is a .pdf file type.

53. (New) The method of Claim 51, wherein the designated file type is a .ppt file type.

54. (New) The method of Claim 51, wherein the second parameter includes a user-entered text string that defines the domain.

55. (New) The method of Claim 30, further comprising:

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accepting from the user via the user interface a third parameter that identifies a subsection type which is a member of the group consisting of a paragraph type, a heading type, and a designated tagged object type;

passing via the application-layer interface the third parameter to the remote server,

wherein each document in the linked set of documents is a member of a group consisting of documents whose respective hyperlink web addresses fall within a specified domain relative to a hyperlink base address, and

wherein the multilevel search is performed over all documents whose web addresses fall within the specified domain and the multilevel search further uses the third parameter to only identify a document as a selected respective document if the first parameter is matched by text found in the identified subsection type within the document.

56. (New) The method of Claim 55, wherein the second parameter includes a user-entered text string that defines the domain.

57. (New) The method of Claim 30, further comprising:

accepting from the user via the user interface a third parameter that designates a file type;

accepting from the user via the user interface a fourth parameter that identifies a subsection type which is a member of the group consisting of a paragraph type, a heading type, and a designated tagged object type; and

passing via the application-layer interface the third and fourth parameters to the remote server,

wherein each document in the linked set of documents is a member of a group consisting of documents whose respective hyperlink web addresses fall within a specified domain relative to a hyperlink base address, and

wherein the multilevel search is performed over all documents whose web addresses fall within the specified domain, the multilevel search further uses the third parameter to only identify a document as a selected respective document if document is of the designated file type, and the multilevel search further uses the fourth parameter to only identify a document as a selected respective document if the first parameter is matched by text found in the identified subsection type within the document.

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58. (New) The method of Claim 30, further comprising:

accepting from the client-side computerized device via the application-layer interface a third parameter that identifies an image file whose file type is a member of the group consisting of a .gif image file type and a .mpg moving image file type;

wherein each document in the linked set of documents is a member of a group consisting of documents whose respective hyperlink web addresses fall within a specified domain relative to a hyperlink base address; and

wherein the multilevel search is performed over all documents whose web addresses fall within the specified domain and the multilevel search further uses the third parameter to only identify a document as a selected respective document if the first parameter is matched by text associated with in the image file.

59. (New) The method of Claim 58, wherein the file type is a .gif file type.

60. (New) The method of Claim 59, wherein the second parameter includes a user-entered text string that defines the domain, and server-side sitemap metadata is used to identify which documents are present in the domain.

61. (New) The method of Claim 58, wherein the file type is a .mpg file type.